

INCIDENCE AND ASSESSMENT OF ANTIDOTES IN ORGANO PHOSPHATE POISONING AT A TERTIARY CARE HOSPITAL, SOUTH INDIA

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ABSTRACT

The Purpose of the study was to find out the incidence of OP (Organo Phosphate) poisoning cases in the ED (Emergency Department), and to assess the antidotes. A prospective-observational study on OP poisoning cases was done in the Emergency Department (ED) for the period of 6 months. All the OP poisoning cases were included in the study. The patient informed consent was taken, and data were collected by using standard Case Report Forms. The incidence of OP poisoning admission was found to be 1% in the ED in the study period .Of the 90 poisoning cases evaluated, the majority (50%) of the victims fell under the age group between 16 to 25 years old. The majority of the victims are recently married and living in joint family. The reasons for

poisoning in 67% cases are intentional, due to quarrel and financial crisis. Most of the cases (99%), the source of poison is toilet and insecticide store room at residence. The incidence of suicidal attempt is more in female victims than male. The antidote was prescribed in 25 patients (28%). The selection of appropriate antidote was done in 10 cases.

KEYWORDS: Organophosphorus, OP poisoning, Severity, Antidote.

INTRODUCTION

Organophosphate (OP) poisoning is always having high morbidity and mortality rates, both in poor and in well-developed countries. Eventhough numerous publications are there regarding OP poisoning but still its not effective. Death rates are high in case OP poisoning

cases. OP Poisoning is a major problem all over the world, though its types varies in different countries.^[1] The causes of poisoning are many-civilian, industrial, accidental & deliberate.^[2] Major cause of morbidity and mortality across South Asian countries is due to self-poisoning and because of their easy availability. Thus, OP compounds and other pesticides are commonly used for suicide.^[1]

Since the exact causative agents is not known there is a greater need for understanding the clinical characteristics of OP Poisonings. In the majority of situations there is a lack of analytical assistance in most of the primary health care systems.^[3] The physicians mostly depend on clinical signs and symptoms for diagnosis. However, the toxicity might become irreversible or even fatal¹ because onset of symptoms may take some time to develop.^[1]

MATERIALS & METHODS

A prospective-observational study was done for 6 months. OP poisoning cases in Emergency Department including casualty and ICU are included in the study. All other poisoning, other than OP cases, were excluded from the study. Human ethical clearance was obtained for carrying out the research work from Ethical Committee of the study Hospital.

Study was to find out the incidence of OP poisoning cases in the study hospital. Informed Consent (ICU) was taken from the study population before commencing the study. The victims, who had undergone exposure to OP Poisoning, irrespective of age, gender are recorded using standard Case Report Form (CRF).

All the cases included in the study, were analyzed for the reason for Poisoning; appropriateness of gastric lavage, selection and rational use of antidotes by the investigators, using Micromedex database. The data including demographic information (age, sex), toxic substances involved, type of poisoning, clinical symptoms, laboratory tests and patient outcome were evaluated. Necessary steps were taken to determine the impact of clinical pharmacist involvement in poison management.

RESULT & DISCUSSION

A total 90 cases were observed in the study period of 6 months and the following evaluations were made from the observed data. Total percentage of OP poisoning cases admitted was found to be 1 % as shown in Fig 1.

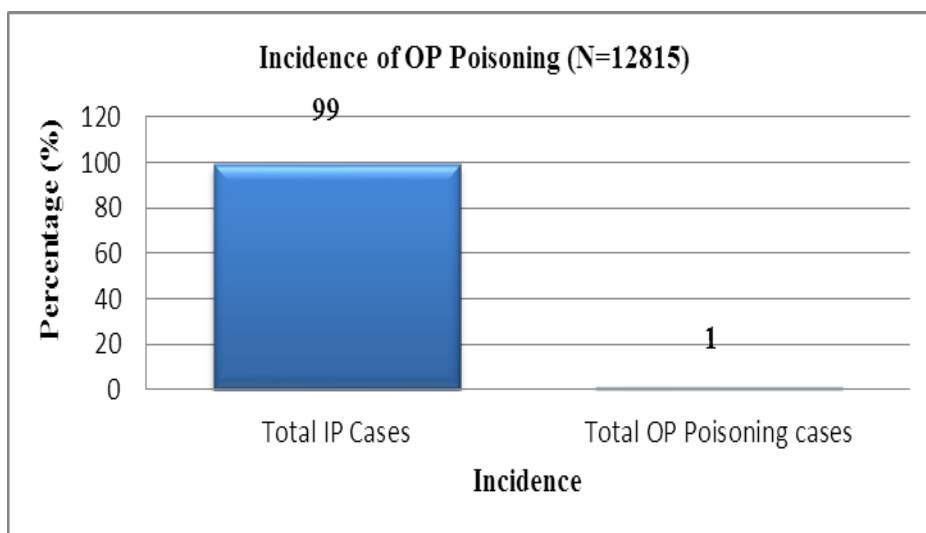


Fig 1: Incidence of OP Poisoning.

In Fig 2 the young adults comprised maximum amount of the population in the hospital was of the age group (16-25yrs)– 50% followed by 22% of age group of 26-35 yrs, 14% of age group of <15 yrs, 8% of age group of >45 yrs, 55% of age group of 36-45 yrs. This is comparable to study done by Rastogi SK et al,^[4] in which maximum number of patients were between 15-25yrs of age. This finding is also supported by study of Srinivas R CH et al.^[5] & Heidi H et al.^[6]

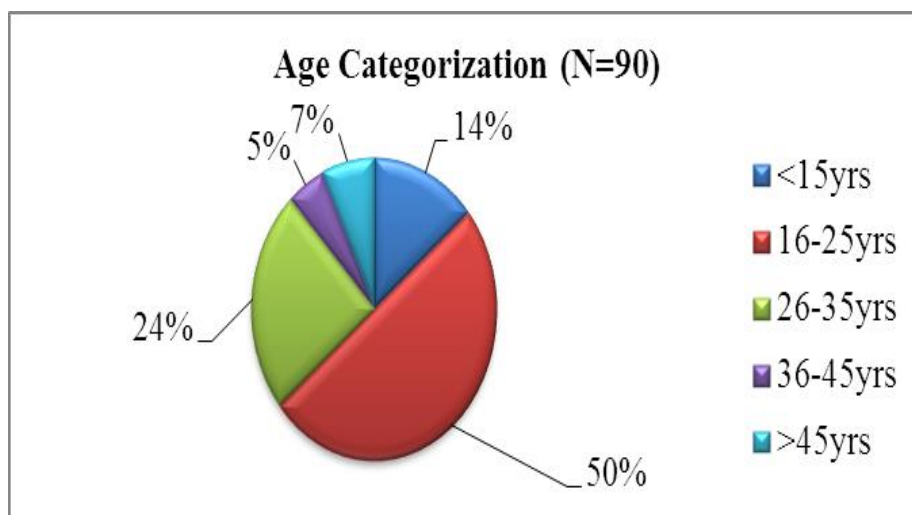


Fig 2: Age Categorization.

Fig 3 showing gender categorization of 90 victims observed, where the majority of victims were females (57) being 63.33% and males 33, being 36.66%. This study is supported by study done by Khan S et al.^[7] in Central India from 1st Jan to 31st Dec 2004, which showed that more females attempted suicide than males. This study is also supported by Islambulchilar M et al.^[8] which showed that more females attempted suicide than males.

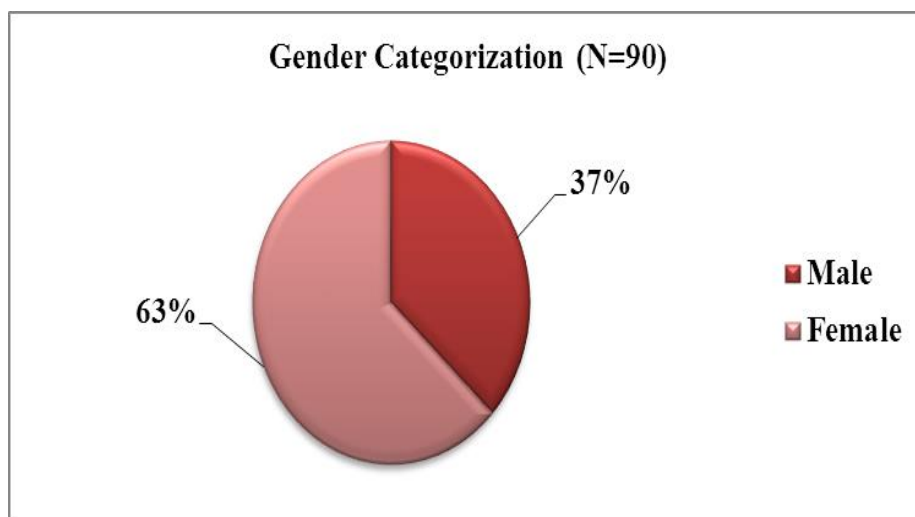


Fig 3: Gender Categorization.

Victims occupation categorization shows that out of 90 patients 41 patients (45%) were House wives followed by 21 Patients(23%) were students,12 patients (13%) were Government servant,7 patients(7%) were having business,9 patients(10%) were labours and followed by 2 patients (2%) were farmers.

This study is supported by study done by Khadka SB et al^[9] which shows Housewives (23%) were commonly involved in Poisoning. At the same time, this study is contrast to the study conducted in Kathmandu Medical college& Teaching Hospital, Nepal by Thapa SR et al^[10] from Feb. 2007-feb 2008 which states that students (43%) & service holders (19%) were commonly involved in poisoning.

Reasons for poisoning categorization shows that 60 patients (67%) were poisoned due to interpersonal conflict,25 patients(28%) due to accident,4 patients (4%) due to financial crisis,1 patient (1%) due to love tragedy.This studies finding is supported by one local study done in Manipal Hospital by Kishore GS et al^[11] in which the most common mode of poisoning was intentional(80%) followed by accidental (8%).This study is also supported by Islambulchilar M et al^[8] which showed that the most common mode of poisoning was intentional(90%).This study is supported by study done by Rivera JA et al^[12] which most common mode of poisoning was intentional (57%). In Source of Poison 89 patients (99%) got the poison in residence, 1 patient (1%) got the poison from Pharmacy. In contrast to this a study by Nordentoft M.et al. ^[13] conducted in Denmark shows mostly homeless people & prisoners did suicide.

Fig 4 gives detail about time elapsed in which 67 patient (74%) time elapsed was unknown, in 14 patients (15%) time elapsed was <2 hrs, in 9 patients (10%) time elapsed was >2 hrs.

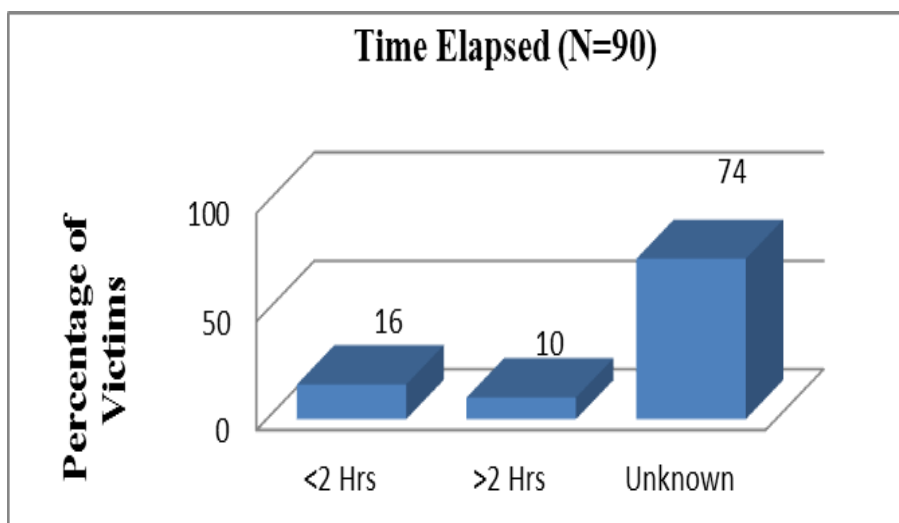


Fig 4: Time Elapsed

In gastric Lavage as shown in Fig 5)- in 54 patients (60%) gastric lavage was not done, 36 patients (40%) gastric lavage was done.

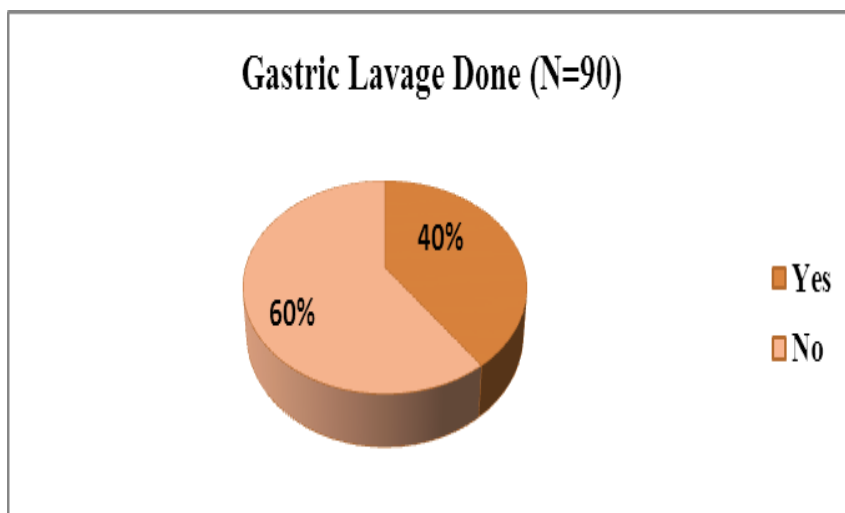


Fig 5: Gastric Lavage Done.

In 6 patients (17%) Gastric lavage was done wrongly & in 30 patients (83%) it was right. Our study shows that there is no proper system in the hospital to carryout Gastric Lavage based on the Individual need. Gastric Lavage need not be in patients in whom time elapsed is >2hrs (As per American Association of Clinical Toxicology), ^[13] but it was done for many patients. The reason for wrong practice of Gastric Lavage is Time elapsed.

The utilization of antidotes for managing poisoning cases is shown in Fig 6. Of the 90 victims, in 65 victims (72%) antidote was not administered & in 25 victims (28%) antidote was administered.

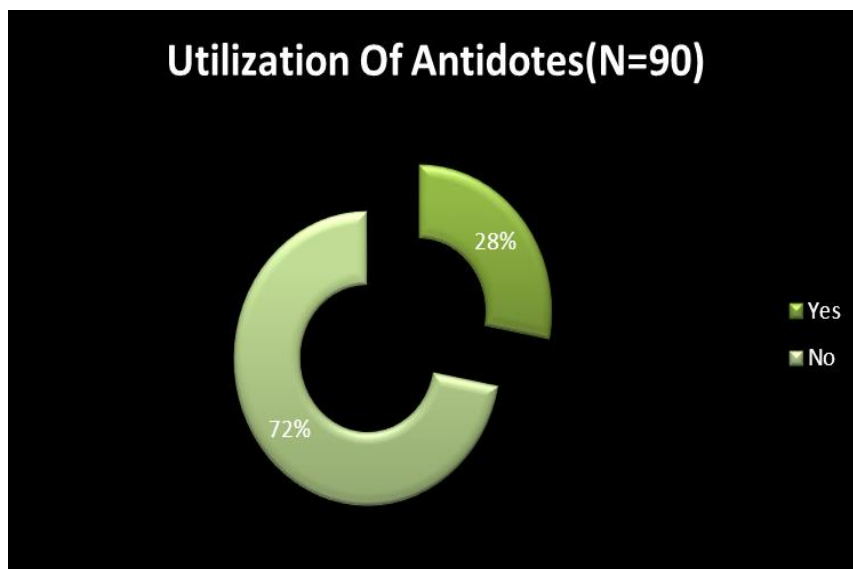


Fig 6: Utilization of Antidotes.

The most commonly used antidote in the study hospital was found to be atropine, followed by Pralidoxime.

Fig 7: shows Assessment of antidote utilization. Of the 25 antidote administered cases in 10 cases (40%) was right & in 15 patients (60%) was wrong.

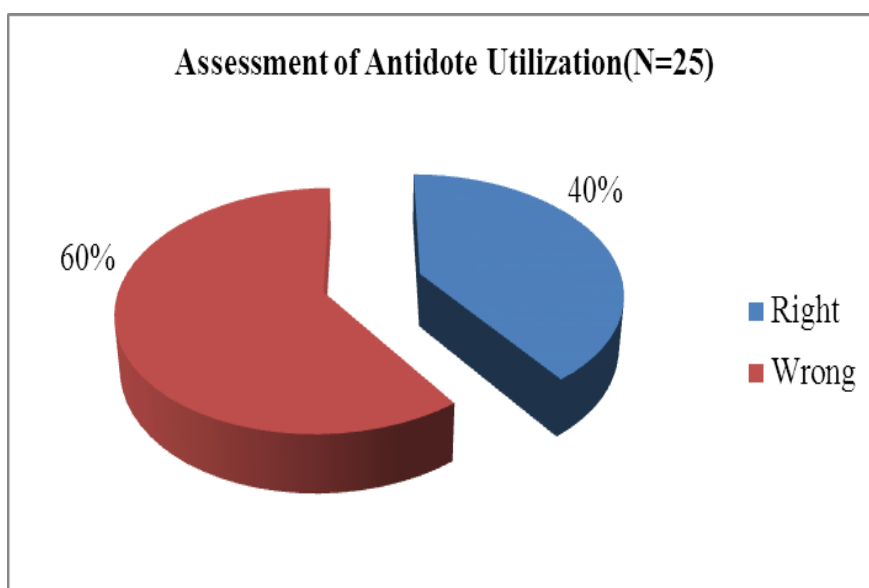


Fig 7: Assessment of Antidote Utilization.

The type of error found in the assessment of antidote utilization was wrong dose & dosing interval as in Fig 8.

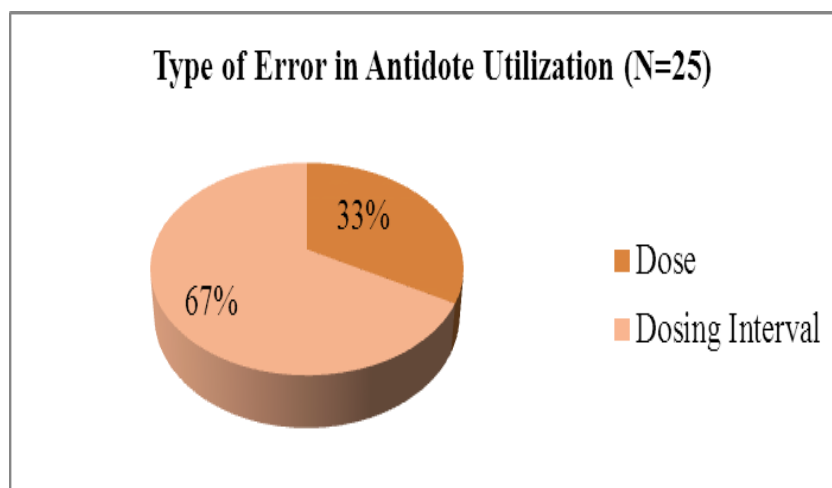


Fig 8: Type of Error in Antidote Utilization.

CONCLUSIONS

In the conclusion, There are considerable variations in the practice of gastric lavage and antidote utilization in practicing clinicians in the study site. In many cases the dosing interval was wrong which lead to problems like Atropine induce Psychosis. This Study would help in prompt and appropriate poisoning treatment, and prevent the prolonged hospitalization & better patient outcome. The study findings were reported to the various physicians and interns who manage the poisoning cases in the ED. This may alter their practice pattern and continually improve the quality of patient care.

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